REMARKS

In the Office Action dated October 18, 2005, claims 1-43 are pending in the above application. Claims 1, 23, 24, 32, and 34 are independent claims from which all other claims depend therefrom. Claims 1-2, 7, 23, and 36 are herein amended. Claim 6 is herein canceled.

Claims 1-2, 4-22, 36-38, and 41 stand objected to under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Office Action states that claim 1 lacks antecedent basis for the limitation of "said heat exchanger." Applicants have herein amended claim 1 to provide such antecedent basis. The Office Action also states that claim 6 lacks antecedent basis for the limitation of an "air flow line." Claim 6 is herein canceled. The Office Action further states that claim 36 recites the limitation of "an ejector", which is recited in claim 34 from which it depends. Claim 36 is herein amended to correct such recitation.

Claims 1-2, 4-10, 16-19, 22-23, and 41 stand rejected under 35 U.S.C. 102(e) as being anticipated by Leigh et al. (U.S. Pat. Pub. No. 2005/0115404 A1).

Amended claim 1 recites an inerting system that includes an air source supplying pressurized air and a fuel tank circuit associated with a fuel tank. A heat exchanger cools the pressurized air. An air separation module is in communication with the heat exchanger and separates inerting gas from the pressurized air. A controller controls flow rate of the inerting gas. An ozone converter converts ozone contained within the pressurized air to oxygen. A temperature sensor is coupled to an air flow line and generates a temperature signal. The controller adjusts ram air flow through the heat exchanger in response to the temperature signal.

Leigh discloses a gas generating system that includes a heat exchanger 18 that is cooled by ram air. A temperature sensor 26 determines temperature of bleed air in the heat exchanger 18. A controller monitor 60 stops the flow of the bleed air when the temperature thereof falls outside a predetermined range.

Applicants submit that Leigh fails to teach or suggest the adjusting of ram air flow. Leigh discloses the stopping of bleed air flow, but does not adjust ram air flow. The claimed invention in adjusting the flow of the ram air provides increased flexibility in design and increased temperature control of the pressurized air entering the air separation module.

In order for a reference to anticipate a claim the reference must teach or suggest each and every element of that claim, see MPEP 2131 and *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628. Therefore, since Leigh fails to teach or suggest each and every limitation of amended claim 1, it is novel, nonobvious, and is in a condition for allowance. Also, since claims 2, 4-5, 7-10, 16-19, 22, and 41 depend from claim 1, they too are novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Claim 23 recites an inerting system that includes an air separation module that is in communication with a heat exchanger and separates inerting gas from pressurized air. The air separation module is at least partially enclosed by at least one shroud that is receiving exhaust air. The flow of exhaust gas around the air separation module heats the pressurized air within the air separation module, thereby, minimizing bleed air/nitrogen-enriched air cooling and associated potential condensation of hydrocarbon vapors into liquid form, which reduces air separation module performance.

Leigh discloses the use of multiple air separation modules 36a-36d. None of the air separation modules of Leigh or any combination thereof are partially or fully enclosed in a shroud. Also, Leigh fails to disclose a circuit in which exhaust air is circulated around the exterior of an air separation module. The Office Action states that Leigh discloses a shroud 34. Applicants, respectfully, traverse and submit that item number 34 in Leigh refers to the air separation module circuit of Leigh not to a shroud. Thus, Leigh fails to disclose each and every element of claim 23, therefore, claim 23 is also novel, nonobvious, and is in a condition for allowance.

Claims 15, 24-25, 27-31, and 42-43 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Leigh.

Applicants submit that since claim 15 depends from claim 1, that it also is novel, nonobvious, and is in a condition for allowance for at least the same reasons.

Claim 24 recites a method of designing an aircraft inerting system that supplies inerting gas to at least one fuel tank of an aircraft. The method includes controlling the flow of an inerting gas from an air separation module to a fuel tank to maintain oxygen content level in the fuel tank at or below approximately 12% for a majority of flight conditions. The method also controls the flow of the inerting gas to allow the oxygen content level to exceed approximately 12% for a minority of the flight conditions.

The Office Action states that the system of Leigh inherently allows higher oxygen levels during a minority of flight conditions by using low-bleed air during climb or cruise modes and refers to paragraphs [0042]-[0045] of Leigh. Applicants traverse. Applicants submit that throughout Leigh it is stated that bleed air is used for all flight conditions including climb, cruise, and descent. The fact that Leigh uses bleed air for climb and cruise modes of operation is irrelevant and does not infer or suggest using different oxygen levels for different flight conditions.

In paragraphs [0042]-[0045], Leigh states that a small amount of pure NEA is provided to the ullage space to reduce the oxygen concentration during cruise operation. Leigh also states that this reduces the NEA requirements during descent. Leigh states in paragraphs [0044]-[0045] and else where that NEA requirements or air flow is higher during descent than during climb and cruise. Higher NEA flow is needed during descent to maintain a low oxygen level in the ullage. So the system of Leigh lowers the oxygen levels in the ullage during cruise to reduce the required NEA demand during descent thus maintaining low oxygen levels throughout flight.

The Office Action states it would have been obvious to allow oxygen content levels to exceed 12% for a minority of flight conditions, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable ranges involves only routine skill in the art.

Applicants submit that it is understood that oxygen levels in a ullage ought to be maintained at or below 12%. In allowing the oxygen levels to be above 12% one is not simply determining an optimal range, but rather is working outside the range commonly used and preferred, specifically oxygen levels at or below 12%. The claimed invention is not directed to an optimal operating percentage or range below 12%, but rather is allowing oxygen levels to exceed 12%, which is against the industry standard. The prior art and the industry in general teach away from using oxygen levels above the critical oxygen level or 12%. Levels above 12%, prior to the present invention, were considered to be not within the workable or preferred operating range. Do to the common understanding in industry and in the prior art, it is clearly not obvious and would not have been obvious at the time of the present invention to allow oxygen levels to exceed 12%.

The Office Action states that Leigh is silent as to the actual range of oxygen levels maintained during the different flight conditions. Applicants submit that this is because the teachings of Leigh are provided with the understanding that oxygen levels are to be maintained below the critical oxygen level, which is approximately 12%. This critical oxygen level is stated in paragraph [0002] of Leigh. Thus, Leigh is similar to the prior art previously relied upon in the Office Action of April 26, 2005, in which the critical oxygen level is stated and it is suggested that the oxygen levels in a ullage are maintained at or below that level. Besides in being silent or in not expressly stating the oxygen levels actually used, Leigh clearly fails to teach or suggest the novel allowance recited in the claimed invention of using oxygen levels outside the commonly preferred working range.

Thus, Leigh fails to teach or suggest each and every element of claim 24, therefore, claim 24 is also novel, nonobvious, and is in a condition for allowance. Since claims 25, 27-31, and 42-43 depend from claim 24, they are also novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Claim 11 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Leigh in view of Hickey et al. (U.S. Pat. No. 3,691,730).

Applicants submit that since claim 11 is dependent upon claim 1, that it is also novel, nonobvious, and is in a condition for allowance for at least the same reasons.

Claims 12-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Leigh in view of Vardaman et al. (U.S. Pat. No. 4,913,380).

Applicants submit that since claims 12-14 are dependent upon claim 1, that they are also novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Claims 20-21, 32, and 34-39 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Leigh in view of Bragg (U.S. Pat. No. 3,788,039).

Applicants submit that since claims 20-21 depend from claim 1, that they are also novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Claims 20, 32, and 34 recite the limitations of an ejector that uses inerting gas motive flow to mix an inerting gas with other gases in a fuel tank. The Office Action states that Leigh fails to disclose an ejector in the fuel tank. Applicants agree and submit that Leigh fails to disclose an ejector that uses motive flow to cause the mixing of inerting gas with other gases in a fuel tank. However, the Office Action states that Bragg discloses such an ejector and refers to item 16 of Bragg. Applicants traverse.

Item 16 of Bragg is not an ejector as claimed, but rather is an aspirator that allows ullage gas to enter into and mix with the fuel within the fuel tank 1. See col. 3, lines 53-57. The aspirator is not located within a ullage, does not direct nitrogen into a ullage, and does not use motive flow of the nitrogen to mix with a ullage. Thus, Bragg also fails to teach or suggest the ejector claimed. Therefore, claims 20, 32, and 34 are novel, nonobvious, and are in a condition for allowance for at least the stated reasons. Since claims 35-39 depend from claim 34, they too are novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Claim 40 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Leigh in view of Bragg as applied to claim 34 and further in view of Hickey.

Since claim 40 depends from claim 34, it is also novel, nonobvious, and is in a condition for allowance for at least the same reasons.

In light of the amendments and remarks, Applicants submit that all of the rejections are now overcome. The Applicants have added no new matter to the application by these amendments. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments, the Examiner is respectfully requested to contact the undersigned attorney.

Respectfully submitted,

ARTZ & ARTZ, P.C.

Jeffrey J. Chapp, Reg. No. 50,579
28333 Telegraph Road, Suite 250
Southfield, MI 48034
(248) 223-9500

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